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42
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/073,716 | 02/11/2002 | Zhijiang Hang | NDRLASERUS | 5677 |

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT PAPER NUMBER

2828

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/073,716

Applicant(s)

HANG ET AL.

Examiner

Cornelius H. Jackson

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group 1, Claims 1-14, in Paper No. 05 is acknowledged. Upon election of claims 1-14, claims 15-39 were cancelled as stated in Applicant's response. Claims 1-14 are now pending in the current application.

Claim Objections

2. Claim 1 is objected to because of the following informalities: It is believed that the word "epi" in line 2 of claim 1 should be "epitaxial". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kish, Jr. et al. (5724376). Regarding claim 1, Kish discloses a laser produced by the

Art Unit: 2828

process of: providing a structure comprising a substrate with an epitaxial structure thereon comprising a gain region with multiple quantum wells, a mirror stack coupled to the gain region, and a conductive layer coupled to the mirror stack; dividing the conductive layer into a conductive, central area and one or more dielectric, peripheral areas; attaching a conductive plate to the conductive layer; thinning the substrate to produce a substrate remnant; and attaching an electrode to the substrate remnant; whereby the conductive plate can act as a mechanical support for the structure, as an electrode, and as a means for dissipating heat, **see Figs. 3, 4 and 6b, see col. 1, lines 40-52, col. 3, lines 43-67, col. 4, lines 36-48.**

Regarding claim 2, Kish teaches an annular electrode **CONTACT** attached to the substrate **TS**, **see Fig. 3.**

Regarding claim 3, Kish teaches the mirror stack comprises a distributed Bragg reflector, **see Fig. 3.**

Regarding claim 4, Kish teaches all the stated limitations, **see col. 3, lines 16-43.**

Regarding claim 8, Kish teaches all the stated limitation, **see Table 8.**

Regarding claims 9 and 10, Kish teaches all the stated limitations, **see col. 4, lines 36-65.**

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

:Art Unit: 2828

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-7 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kish, Jr. et al. (5724376). Kish, as applied to claims 1-4 and 8-10 above, teach all the stated limitations except for the specific material used for the active layer and Bragg reflector, the thickness of the conductive plate and the CMP process used to produce the substrate. Regarding claims 5-7, Kish teaches the use of Group III-V semiconductor materials for the active layer and mirror stack layers, **see col. 1, lines 26-39, col. 3, lines 16-42 and col. 7, lines 45-63**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the stated material as an active layer in order to obtain a desired wavelength, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 11, it has been "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 12, Kish teaches the conductive plate is formed from metal, **see col. 4, lines 36-48**.

Regarding claim 13 and 14, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

:Art Unit: 2828

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



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August 25, 2003



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